European Business Cycle Indicators

Developments in business and consumer survey data in 2012Q1

- **In the first quarter of 2012, economic sentiment improved slightly in both the EU and the euro area.**

- **However, the fragile upward trend observed at the beginning of the year came to a halt in March, when the ESI declined in the EU and remained broadly stable in the euro area.**

- **Confidence among consumers improved continuously over the first quarter, but the indicator remains well below its long-term average.**

- **While developments are mixed across sectors and EU Member States they suggest a broad stabilisation of economic activity in 2012Q1**

Highlight: the relevance of consumer sentiment for assessing private consumption growth

This highlight section takes a closer look at the information contained in the consumer survey by analysing the statistical relationship between survey and hard data for the euro area. In addition to the consumer confidence indicator, its four component series and three other monthly series from the survey are analysed. Of particular interest is how the different indicators have performed since the onset of the economic and financial crisis. The results suggest that the consumer confidence index and several of the individual questions in the consumer survey can contribute to better forecasts of consumer spending. Since the onset of the economic and financial crisis, the relation between the consumer confidence index and actual consumption even appears to have become closer.

ESI and GDP growth for the EU

(Jan 2001 to March 2012 for survey data)
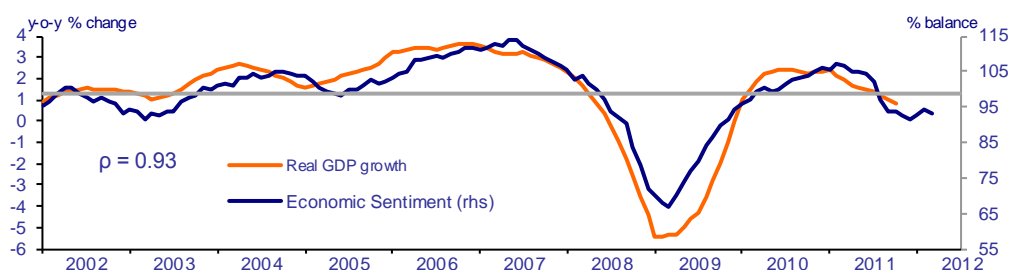
$\rho = 0.93$

Real GDP growth
Economic Sentiment (rhs)

Note 1: The horizontal line (rhs) marks the long-term average (=100) of the sentiment indicator.
Note 2: Both ESI and GDP series are plotted at monthly frequency. Monthly GDP data are obtained by linear interpolation of quarterly data.

Contents

1. Recent developments in survey indicators for the EU and the euro area

In the first quarter of 2012, the Economic Sentiment Indicator (ESI) improved slightly in both the EU and the euro area. In March, the ESI was below its long-term average in both regions, at 93.2 in the EU (1.6 points higher than in December 2011) and 94.4 in the euro area (1.6 points higher than in December 2011). The upward trend observed in the first two months of the year was interrupted in March, when the indicator decreased by 0.8 points in the EU and remained broadly stable in the euro area. Developments in sentiment in the first quarter were rather mixed among EU Member States and across sectors.

Sentiment in *industry* improved in the first two months of 2012, but in March the confidence indicator decreased, broadly offsetting the February increase. The indicator now stands just below its long-term average. On a quarterly basis the industrial confidence indicator improved in the EU, the euro area, Germany, Spain, the Netherlands, Poland and the UK, while it decreased in France and Italy. However, the monthly profile showed a drop in March in Germany, Spain, the Netherlands and the UK, while the industrial confidence indicator improved in Italy, Poland and, for two months in a row, France.

In the EU, the increase in industrial confidence in the first quarter results from a constant improvement of managers' production expectations, while managers' assessment of their stocks and order books worsened. In the euro area, managers assessed their stocks more positively, while their appraisal of order books was more negative than in the EU. Production expectations improved also in the euro area, though less strongly than in the EU. In both the EU and the euro area, managers' assessment of production trends observed during recent months and export order books (two variables which are not included in the Industrial Confidence Indicator) improved in the first quarter. Manufacturers' employment prospects improved in January 2012 in both regions and then remained broadly stable in the EU in February and March, while they worsened slightly in the euro area. Meanwhile, selling-price expectations increased slightly but

constantly in the first quarter 2012 in both areas.

Quarterly survey data published in January 2012 shows that capacity utilisation slightly increased in both the EU and the euro area. At 80.2% in the EU and 79.9% in the euro area, capacity utilisation remains still below its long-term average of 81.0% and 81.4%, respectively.

During 2012Q1, sentiment in *services* improved in both the EU and the euro area. Nevertheless, the indicator stood well below its long-term average in both regions in March. The increase in Q1 resulted mainly from an improvement of past and expected demand, while managers' assessment of the business situation remained broadly stable in 2012Q1 compared with 2011Q4. Developments in the confidence indicator were rather mixed across countries. Among the seven largest Member States, Germany, Spain and Poland have seen marked improvements of sentiment in services during the first quarter of the year compared with 2011Q4, while in France, Italy and the Netherlands sentiment worsened and in the UK it remained broadly unchanged.

In 2012Q1, the *retail* confidence indicator declined slightly in the EU and markedly in the euro area. The decline is mainly due to a drop in January, while the indicator improved in February and March in both areas. At component level, the assessment of the present and expected business situation followed the same path: a strong decline in January was followed by an increase in February and March. Meanwhile, managers' assessment of their stocks has been more volatile but all in all it worsened in both the EU and the euro area in 2012Q1 compared with 2011Q4.

In both regions, sentiment in *construction* improved in 2012Q1 compared with 2011Q4. The improvement reflects managers' less pessimistic assessment of both their order books and their firm's employment prospects. However, the indicator remains well below its long-term average in both areas. The development observed since May 2010 – an oscillation around a basically flat trend, particularly in the EU - is at odds with the reference series (construction production), which grew constantly (in year-on-year terms)

over the same period. Among the large Member States construction confidence improved in the first quarter 2012 in Spain, Italy and France, though remaining at very low levels. By contrast, the indicator dropped markedly in the Netherlands and somewhat in Poland. In Germany and the UK sentiment remained broadly stable compared with the previous quarter.

Confidence among *consumers* improved continuously over the first quarter. Nevertheless, the indicator remains well below its long-term average. In both the EU and the euro area, the improvement can be traced back to consumers' less pessimistic expectations about the general economic situation, while their appraisal of expected savings slightly worsened. In the EU consumers' unemployment fears and expectations concerning their financial situation remained broadly unchanged, while in the euro area both worsened. Although not included in the consumer confidence indicator, consumers' assessment of their past financial situation decreased slightly while consumers' future intentions to spend more money on big-item purchases went up in 2012Q1 compared to the previous quarter.

Finally, the first quarter of 2012 saw an increase in confidence in *financial services* – which is not included in the ESI – in both the EU and in the euro area, reflecting managers' more positive assessment of the past business situation and their less pessimistic perceptions of both past and expected demand for financial services.

Overall, the latest survey readings give contrasting signals and would suggest a broad stabilisation of economic activity in 2012Q1 in both the EU and the euro area.

The fact that the dynamics of the EU and euro-area economies are rather difficult to read at the current juncture is also confirmed by conflicting signals from the climate tracer and the turning point indicator. The economic climate tracers for both the EU and the euro area remained in the contraction quadrant in March 2012 (see Annex 1 for further details). By contrast, in January, February and March, the turning point indicator for the euro area — which extracts the (positive or negative)

surprises from new available survey data — stayed in positive territory, signalling a positive change and a possibly more favourable cyclical phase for the euro-area economy (see Annex 2 for further details).
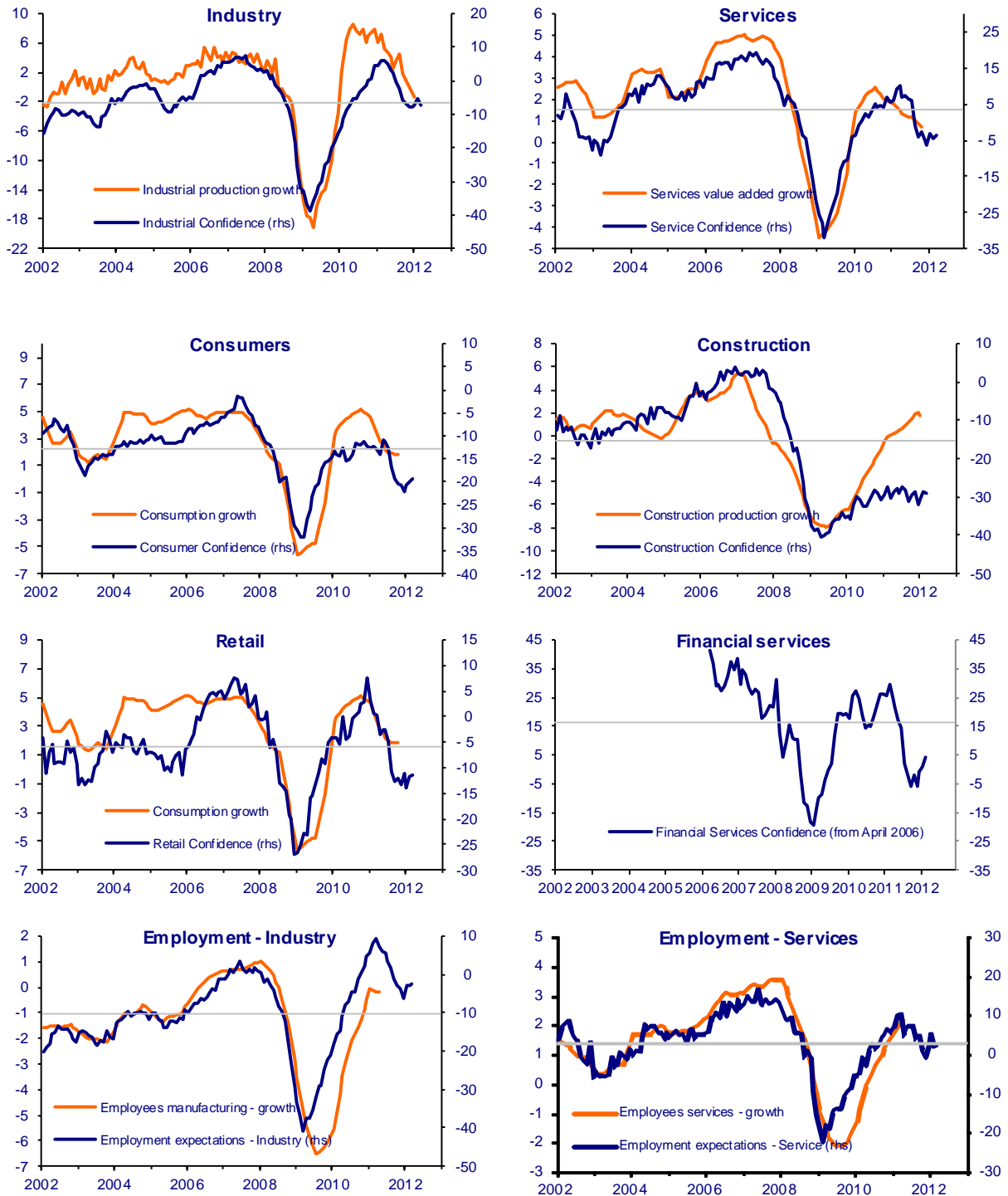
2. Recent developments in selected Member States

Among the seven largest Member States, the ESI improved in Germany, Spain, Poland and the UK, while it decreased in France, Italy and the Netherlands in 2012Q1 compared to 2011Q4. Among these Member States, the ESI remained above its long-term average in March only in Germany.

Economic sentiment in **Germany** showed some signs of recovery through the end of 2011/beginning of 2012, but in March, the ESI registered an important decrease interrupting these positive developments. The ESI is, nevertheless, still above its long-term average. In industry, after the sharp decrease in the first three quarters of 2011, the confidence indicator remained stable in the fourth quarter and then improved in January and February 2012, suggesting a possible rebound in industrial activity. However, in March the industry confidence indicator dropped markedly. The same pattern is visible at the components level: In January and February, managers' assessment of order books improved, they became less pessimistic about their production prospects and more positive about their order books, in March, all three components worsened. Also in the services sector, confidence improved through the end of 2011/beginning of 2012 but then declined in February and March. By contrast, sentiment in retail trade followed the opposite trend in 2012Q1; it declined in January and February and rebounded in March. Meanwhile, confidence among consumers and in the building sector remained broadly stable over the quarter.

A rather different picture was observed in **France**, where the ESI worsened until January 2012 and then improved in February and March. Although the ESI is still below its long-term average, developments over the last months suggest a stabilisation of economic activity. During the last two months, confidence improved notably in industry, as managers were more optimistic about their

Graph 1: **Sectoral confidence indicators and reference series for the EU**

(Jan 2001 to March 2012 for survey data)

Industry

Industrial production growth

Industrial Confidence (rhs)

Services

Services value added growth

Service Confidence (rhs)

Consumers

Consumption growth

Consumer Confidence (rhs)

Construction

Construction production growth

Construction Confidence (rhs)

Retail

Consumption growth

Retail Confidence (rhs)

Financial services

Financial Services Confidence (from April 2006)

Employment - Industry

Employees manufacturing - growth

Employment expectations - Industry (rhs)

Employment - Services

Employees services - growth

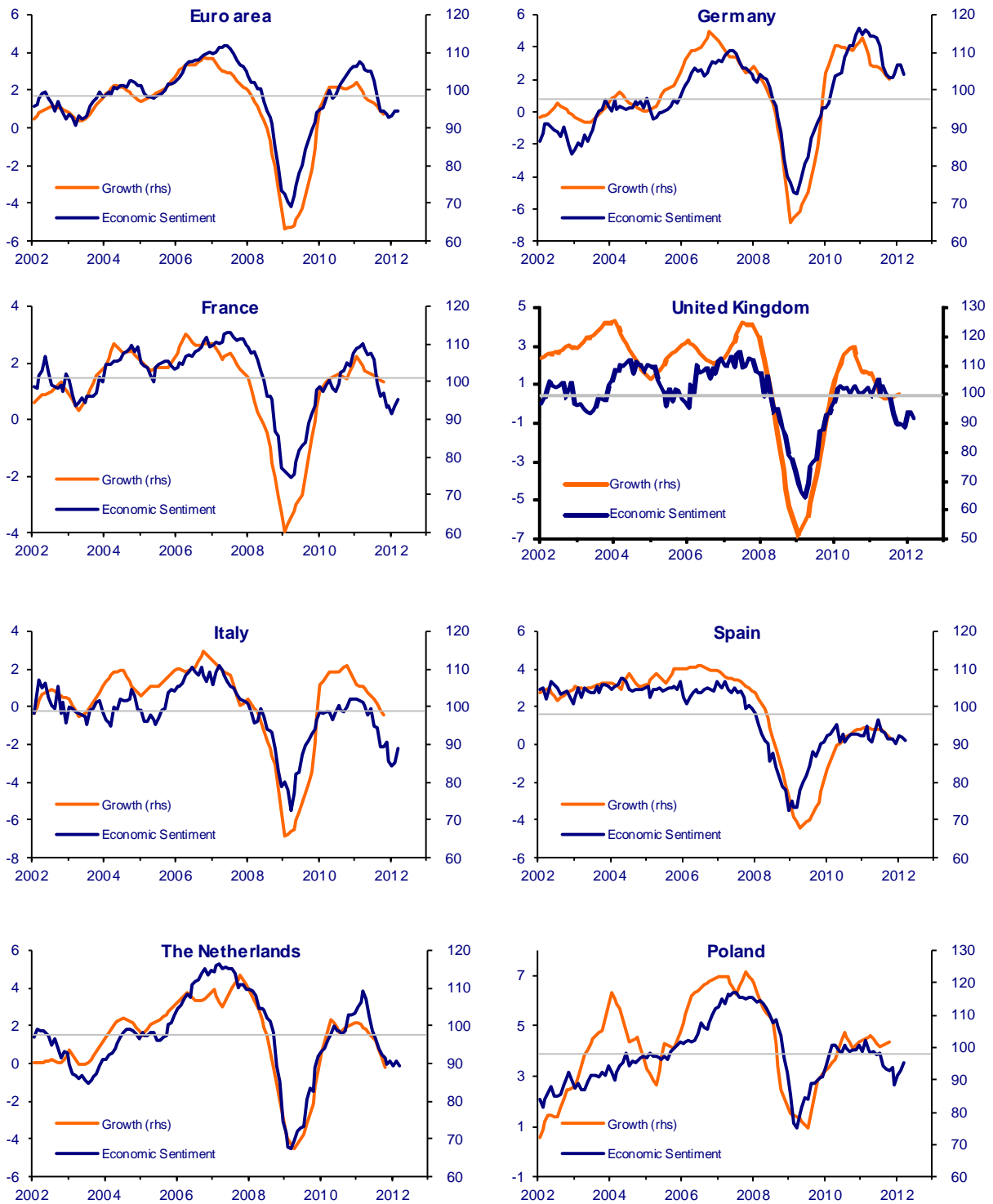Employment expectations - Service (rhs)

Note 1: The horizontal line (rhs) marks the long-term average of the survey indicators.
Note 2: Confidence indicators are expressed in balances of opinion and hard data in y-o-y changes. If necessary, monthly frequency is obtained by linear interpolation of quarterly data.

Graph 2: **Economic Sentiment Indicator — Selected EU Member States**

(Jan 2001 to December 2011 for survey data)

Note 1: The horizontal line marks the long-term average (=100) of the sentiment indicator.
Note 2: Confidence indicators are expressed in balances of opinion and GDP in y-o-y changes. Both variables are plotted at monthly frequency. Monthly GDP data are obtained by linear interpolation of quarterly data.

production prospects and assessed their stocks of finished products more favourably. Managers, however, were cautious in their assessment of current order books and past production trends, the latter declining slightly over the quarter. Confidence improved also among consumers; the indicator has been on an upward trend since December 2011, mainly thanks to more optimistic consumer expectations about both their own financial situation and the country's economic situation. On the other hand, confidence in the retail trade sector continued on a downward trend, which had started at the beginning of 2011. Confidence in the services sector declined in January and February and improved slightly in March, while confidence in the construction sector remained broadly stable.

The **United Kingdom** reported a significant improvement in sentiment during the first quarter of 2012 compared with 2011Q4. This was due mainly to gains in confidence in the industry and retail trade sectors. As in the case of Germany, the picture changes slightly when looking at the monthly profile. Confidence in both sectors improved in January and February but dropped in March. In industry, managers became less pessimistic about past and expected production. Confidence in the services and construction sectors remained broadly stable, while it improved among consumers. Confidence indicators remain at a very low level in services, construction and among consumers.

In **Italy**, where confidence has been weakening since the beginning of 2011, the ESI was overall weaker in 2012Q1 than in the preceding quarter. However, after a strong drop in January, the indicator improved in February and March thanks to increasing confidence among consumers and managers in the retail trade and services sectors. Confidence in industry remained broadly stable over the first quarter of 2012, at a somewhat lower level than in 2011Q4. Managers in the industrial sector reported a worsening in their order books but became less pessimistic about production expectations. Confidence in construction improved slightly compared to 2011Q4, but the indicator dropped in March, to a rather low level at which it has been for the last two years. Italy's ESI remains the lowest of the seven largest EU

Member States (and well below its long-term average).

As for Germany and the UK, in **Spain,** economic sentiment in the first quarter was at a somewhat higher level than in the previous quarter, but the indicator decreased in February and March. Since the beginning of 2010, the ESI has remained broadly stable at a comparatively very low level. Confidence remained broadly stable in the industry, retail trade and construction sectors, while it improved in the services sector and decreased among consumers. Spanish consumers have become particularly pessimistic about their country's future economic situation and unemployment rate. They also expect a worsening of their own financial situation.

In the first quarter, sentiment in the **Netherlands** decreased slightly compared with the fourth quarter of 2011. The ESI is now well below its long-term average. During the first quarter the indicator remained broadly unchanged, reflecting similar patterns in industry, services, retail trade and among consumers. By contrast, Dutch managers in the construction sector became more pessimistic. Confidence in this sector has been on a downward path since December 2011.

Economic sentiment improved in **Poland** in 2012Q1 compared with 2011Q4, thanks to a marked increase in the services confidence indicator. However, the ESI is still below its long-term average. In industry, managers have become less pessimistic about future production, despite a gloomier assessment of both their order books and their stocks. Overall, confidence in industry improved slightly in the first quarter. Meanwhile, confidence in the retail trade sector and among consumers remained broadly stable in Q1 compared with the last quarter of 2011, and it decreased in the construction sector.

3. Highlight: the relevance of consumer sentiment for assessing private consumption growth

Private final consumption accounts for more than 70% of total final consumption and for around 57% of GDP in the euro area. During the sharp GDP contraction in 2009, private final consumption alleviated to a significant extent the negative contribution from other components to economic growth. Early information about the evolution of private consumption is thus crucial for an overall assessment of the economy.

There is theoretical and empirical evidence that consumer sentiment has some predictive power in explaining developments in private consumption.[1] The Joint Harmonised EU Programme of Business and Consumer Surveys (BCS) surveys more than 40,000 consumers across the EU each month, collecting information on consumers' opinions about past, current and future economic developments. The questionnaire comprises both macro-oriented questions (e.g. general economic situation, unemployment in the country, price trends) and micro-oriented questions (e.g. financial situation, spending and saving intentions of the household).[2]

The survey collects responses to 15 questions, 12 monthly and 3 quarterly. On the basis of four of the monthly questions, the composite consumer confidence indicator (CCI) is calculated. All questions of the CCI are forward looking; two cover expectations about the general economy and two about the household's own economic situation.

One important advantage of the consumer survey series is their timeliness. Monthly consumer survey data for the EU and the euro area are collected during the first two weeks of each month and are available on the second (or even the third) last working day of the month. The data on quarterly GDP components are available only 65 days after the end of the reference quarter. Thus, when the hard data concerning private consumption in the previous quarter are published, there are already two monthly observations of consumer confidence indicators available to assess consumption developments in the current quarter.

The EU consumer survey results are closely followed by economists, policy-makers and business managers. Unlike the PMI for the business sector, there is no direct competitor when it comes to measuring consumer sentiment in the EU. However, the CCI has been subject to criticism, mainly along two lines. The first criticism concerns its composition, where the selection and/or weighting of its component series has been questioned.[3] The second questions the degree of its predictive power for consumption growth.[4] In its March 2012 Monthly Bulletin, the ECB reported a temporary disconnect between the CCI and consumption growth over the period 2001-07. However, thereafter the analysis finds that the correlation between the two variables increased markedly again, to a level above the historical average. Nevertheless, the ECB concludes that the usefulness of the CCI varies across countries and periods and that caution should be exercised in deriving conclusions about consumption growth on the basis of consumer confidence alone.

---

[1] For an overview see Jonsson and Lindén (2009), 'The quest for the best consumer confidence indicator', European Economy, Economic Papers 372, March.

[2] The exact wording of the questions can be found in European Commission (2007), The Joint Harmonised EU Programme of Business and Consumer Surveys, User Guide. Available at: http://ec.europa.eu/economy_finance/db_indicators/surveys/documents/userguide_en.pdf

[3] See e.g. Gayer and Genet (2006), 'Using factor models to construct composite indicators from BCS data', European Economy, Economic Papers 240, October; and Jonsson and Lindén (2009), op. cit.

[4] See e.g. ECB (2012), Monthly Bulletin, March; Jonsson and Lindén (2009), op. cit.
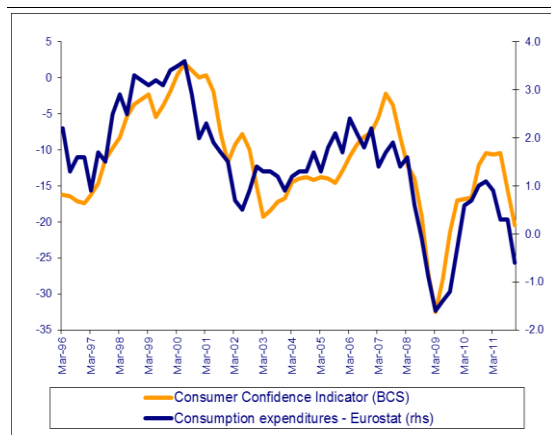
Note: monthly BCS data are converted into quarterly by averaging the balances/figures over 3 months. Consumption expenditures are expressed in y-o-y changes.
Source: Commission services.

balances[5] and year-on-year private consumption growth[6] (Table 1).

Table 1: **Private consumption expenditures and survey data – correlation coefficient**

	Coincident correlation	Leading correlation
Past financial situation	0.74	0.71
Expected financial situation*	0.79	0.81
Past general economic situation	0.79	0.69
Expected general economic situation*	0.78	0.78
Unemployment expectations*	-0.69	-0.59
Envisaged major purchases	0.83	0.80
Envisaged savings*	0.68	0.68
Consumer Confidence Indicator	0.81	0.75

Note: correlation coefficients are computed over the period 1996Q1 – 2011Q4; coincident correlation is computed using current quarter values for both survey and hard data while for the leading correlation the hard data is shifted one quarter ahead.
* Component series of the CCI

Against this background, this section takes a closer look at the information contained in the consumer survey by analysing the statistical relationship between survey and hard data for the euro area. Apart from the composite CCI, its four component series and three other monthly series from the survey will be analysed. Of particular interest is how the different indicators have performed since the onset of the economic and financial crisis. Graph 1 illustrates that, unlike its somewhat lagging performance in the previous recession in 2000/01, the CCI started to decline sharply in late 2007 already, well in advance of the abrupt downturn in consumer expenditure. While it was also leading the hard data in the subsequent recovery over 2009/10, the renewed faltering in consumption growth in early 2011 was not indicated in time by the CCI.

More formally, the usefulness of consumer confidence for the assessment of private consumption can be illustrated, in a first step, by looking at correlations between the survey

The question concerning households' envisaged major purchases displays the strongest correlation with private consumption growth. The correlation is broadly maintained even when the balances are shifted by one quarter to check for their leading properties with regard to the hard data.[7] The overall consumer confidence indicator shows the second highest contemporaneous correlation with the reference series, and only slightly lower correlation in a one-quarter leading set-up.

Highly correlated are also the series on households' expected financial situation and on households' views of both the past and expected general economic situation. With leading correlations higher or equal to coincident correlations with the reference

[5] The survey results are summarised by the so-called balance statistic, which is the difference between positive and negative answering options to a given question. To make the monthly series comparable to the statistical reference series, quarterly values are computed as 3-month averages.
[6] Looking at the year-on-year (instead of quarter-on-quarter) changes is justified by the fact that the consumer survey questions refer to a 12-month horizon.
[7] The good tracking performance of the question on envisaged major purchases was also confirmed at the individual country level in the study by Jonsson/Lindén (2009), op. cit.

series, households' expectations concerning their own financial situation and the general economic situation also display clear leading properties one quarter ahead.[8]

The fact that the overall confidence indicator performs better than its components on average points to the usefulness of combining information contained in different series in a composite indicator. However, the analysis also shows that the current structure of the overall confidence indicator is probably not the optimal combination.

Table 2 shows the development of (coincident) correlations before and after the crisis. Since the onset of the crisis, the correlation deteriorates markedly in case of the financial situation assessments (both past and expected) and envisaged savings. The decoupling is particularly evident for envisaged major purchases. On the contrary, the assessment of the general economic situation (both past and expected), unemployment fears and particularly the overall confidence indicator have been moving much closer with private consumption growth since early 2008 than before.

Table 2: **Private consumption expenditures and survey data – correlation coefficient**

	Before the crisis	During the crisis
Past financial situation	0.69	0.49
Expected financial situation	0.69	0.42
Past general economic situation	0.69	0.83
Expected general economic situation	0.67	0.76
Unemployment expectations	-0.55	-0.82
Envisaged major purchases	0.78	0.22
Envisaged savings	0.61	0.41
Consumer Confidence Indicator	0.66	0.90

Note: correlation coefficients are computed for the period 1996Q1 – 2007Q4 (before the crisis) and 2008Q1 – 2011Q4 (since the start of the crisis)

The same is true for the CCI if one looks at the direction of changes. Over the full sample from 1996, the quarterly changes in the indicator were of the same sign as those in consumption growth (i.e. both increased or decreased) in

less than 60% of the cases. However, from the first quarter of 2008 onwards, the CCI correctly indicated the direction of change in consumption growth in more than 80% of the cases.

Bivariate correlations can only give a rough idea of the usefulness of an indicator. In order to evaluate the intrinsic marginal predictive value of the individual indicators, more thoroughly, other determinants of private consumption growth have to be included in the analysis. For simplicity, in what follows, we use a very simple benchmark model where consumption growth depends only on its own lagged values.[9]

Table 3: **Private consumption expenditures – t-stat and goodness of fit**

Explanatory variables	Coincident		Leading 1	
	t-stat	R^2	t-stat	R^2
AR(1)	29.05	0.83	29.05	0.83
AR(1)+ Past financial situation	10.38 2.17	0.84	10.79 1.08	0.83
AR(1)+ Expected financial situation	10.37 4.56	0.87	8.86 3.24	0.85
AR(1)+ Past general economic situation	8.45 1.27	0.83	11.09 -0.79	0.83
AR(1)+ Expected general economic situation	10.67 4.41	0.87	9.47 2.41	0.84
AR(1)+ Unemployment expectations	10.64 -0.08	0.83	13.11 1.13	0.83
AR(1)+ Envisaged major purchases	8.09 2.88	0.85	8.54 1.82	0.84
AR(1)+ Envisaged savings	11.97 2.51	0.85	11.66 1.51	0.85
AR(1)+ Consumer Confidence Indicator	8.32 2.81	0.85	9.52 0.82	0.83

Note: the estimations are computed over the period 1996Q2 – 2011Q4

To test for the additional information content of the survey indicators, these are then added to the autoregressive benchmark model of consumption growth. To test for series' leading properties in this in-sample scenario, the current survey balances are also replaced by the balances from the previous quarter. The

---

[8] For households' expectations on their financial situation over the next twelve months, the correlation coefficient is still 0.78 and 0.70 when computed for two and second quarters ahead.

[9] In the same set-up, Jonsson and Lindén (2009) report that disposable income as an additional determinant is not significant in explaining short-term variations in consumption growth.

significance (t-stat) of the explanatory variables (AR and survey data) as well as the goodness of fit statistics (R²) are presented in Table 3.

It turns out that households' expectations about their own financial situation and the general economic situation have significant additional predictive power, both in a coincident and a one-quarter leading scenario. The assessment of their past financial situation, plans for major purchases, savings expectations and the aggregate confidence indicator appear to have significant forecasting power for consumption growth only in a coincident set-up. The assessment of the past general economic situation and unemployment expectations does not seem to significantly add to the explanation of variation in consumption.

To further investigate the usefulness of the confidence indicators in forecasting consumption growth, the next step is to evaluate their performance in an out-of sample forecasting scenario. Based on the previous analysis, results are presented for the best-performing survey series only, i.e. the expectations about the financial situation, the general economic situation, and the aggregate confidence indicator (CCI). The tested models use the current quarter values for both survey and hard data. Again, the autoregressive model – AR(1) – is taken as a benchmark. Table 4 presents the results from an out-of-sample forecast exercise over the period 2008Q1 – 2011Q4. The first estimation sample is 1996Q2 – 2007Q4, on the basis of which forecasts for the following quarter are made and the respective forecast errors are saved. The models are then re-estimated by step-wise extending the sample by one quarter and forecasting one quarter ahead. This set-up results in 16 out-of-sample forecast errors for the AR model and the models augmented by one of the confidence series. Table 4 presents the root mean squared errors computed thereof.

Table 4: **Root mean squared errors of out-of-sample forecasts for private consumption growth**

Models	RMSE
AR(1)	0.63
AR(1) + Future general economic situation$_t$	0.45
AR(1) + Expected financial situation$_t$	0.47
AR(1) + Consumer Confidence Indicator$_t$	0.56

Note: RMSE based on 16 out-of-sample forecast errors (2008Q1 to 2011Q4)

The results show that all three indicators improve markedly the forecast precision over the benchmark AR(1) model, in particular the households' expectations about their own financial situation.[10]

Conclusion

The results of the consumer survey continue to deliver valuable information about developments in consumer spending behaviour. The consumer confidence index and several of the individual questions of the consumer survey, particularly those with a forward-looking character, can contribute to better forecasts of consumption growth both in- and out-of-sample. Since the onset of the economic and financial crisis, the link to this important macro variable seems to have become closer in several cases, and particularly for the CCI itself. This highlight section focused on results for the euro area and investigated the link to a single macroeconomic reference series, private consumption growth, only. Many other potentially useful applications of the survey results have not been addressed. For instance, the CCI also proves useful in tracking developments in the savings ratio. Further analysis should be carried out to investigate the properties of the consumer survey series at the individual country level. Moreover, given that individual series at times outperform the CCI and that some of its component series appear to

---

[10] However, the improvement compared to the AR model is not statistically significant using the asymptotic test proposed by Diebold and Mariano (1995), 'Comparing predictive accuracy', Journal of Business and Economic Statistics, 13:3. Given the test's asymptotic nature, in the present setting of only 16 observations the results must be interpreted with caution.

perform systematically worse than others, the 'optimal' composition of the aggregate consumer confidence index remains an important question to be addressed.

Annex 1: The Economic Climate Tracer

The graphs below show the economic climate tracer for the EU (including sectoral components), the euro area and the seven largest EU Member States.

The series levels are plotted against their first differences (m-o-m changes), so that each chart depicts — at the same time — the current stance of the sector/country and its most recent dynamics. Series are smoothed to eliminate short-term fluctuations.

The four quadrants of the graphs enable four phases of the business cycle to be distinguished:
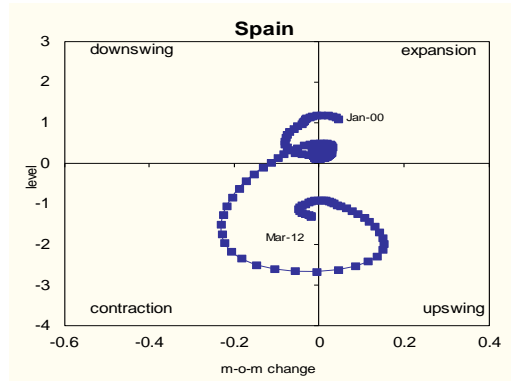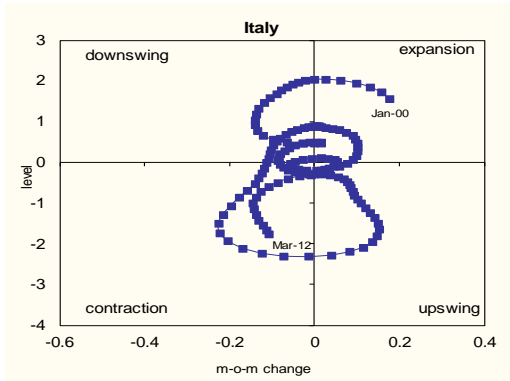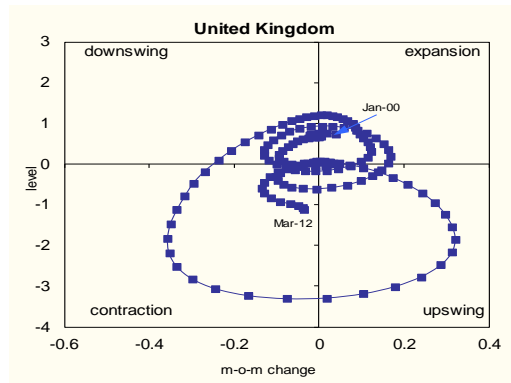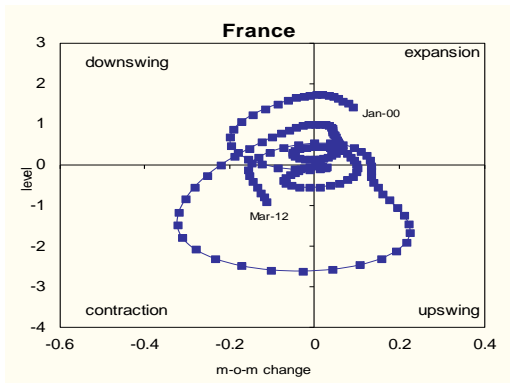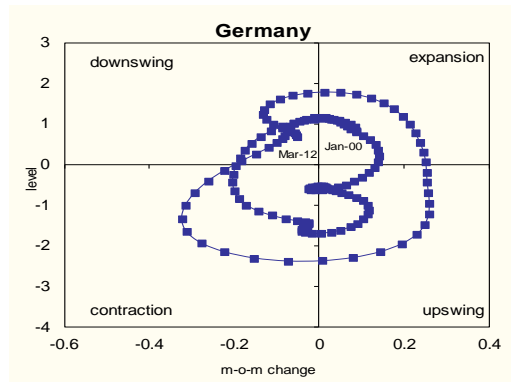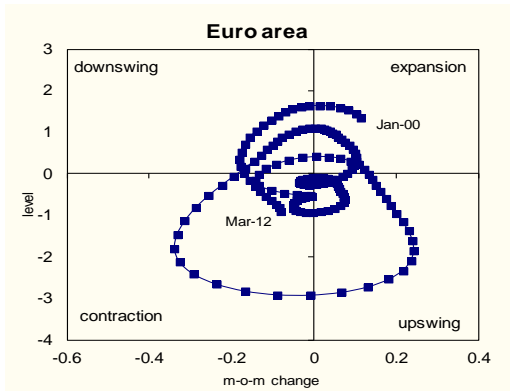
- 'expansion' (top right quadrant),
- 'downswing' (top left),
- 'contraction' (bottom left), and
- 'upswing' (bottom right).

Cyclical peaks are positioned in the top centre of the graph, and troughs in the bottom centre.

Economic climate tracer across sectors, EU
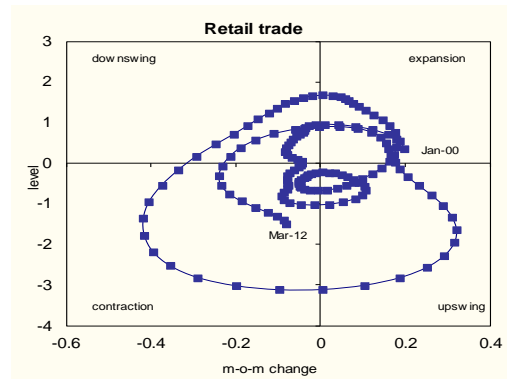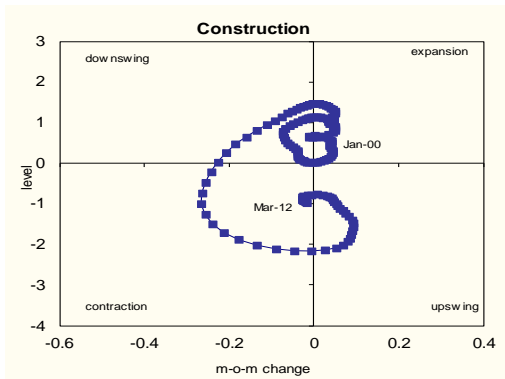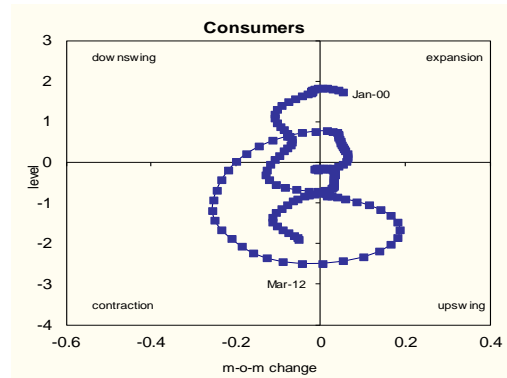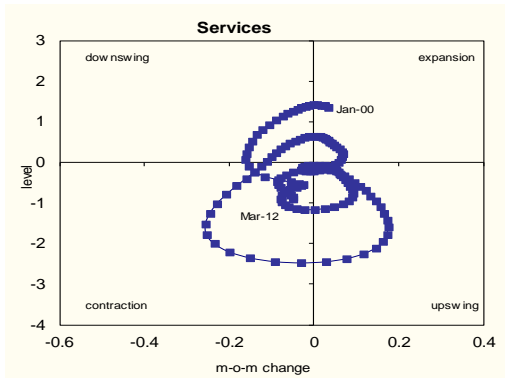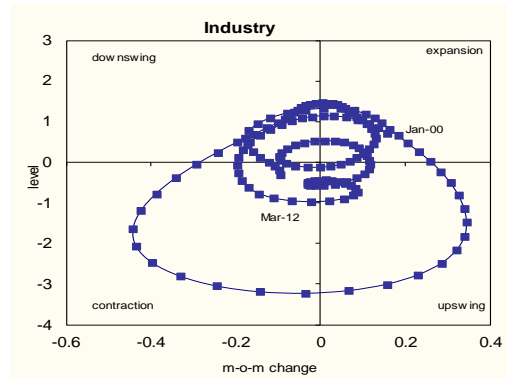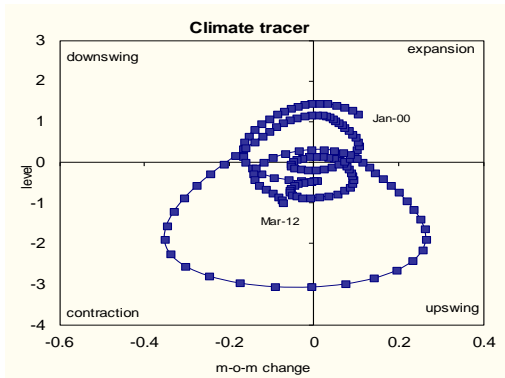
Economic climate, largest EU Member States

Euro area

Germany

France

United Kingdom

Italy

Spain

Netherlands

**Poland**
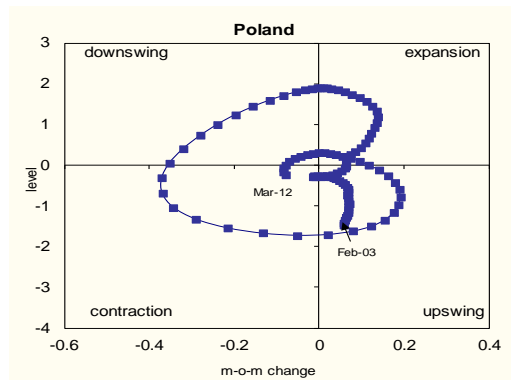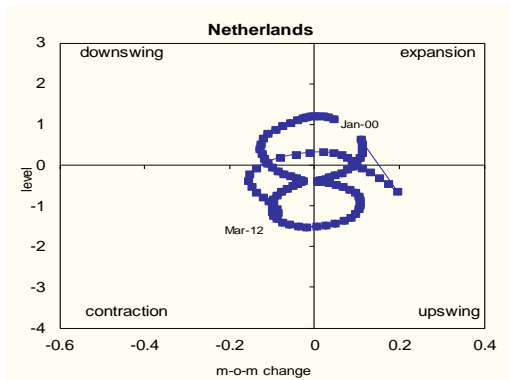
Annex 2: Euro-area turning point index

The turning point index — based on a Markov switching model — estimates the difference between high- and low-regime probabilities.

On the basis of the latest survey data for the euro area, the turning point index (TPI) was at 0.79 in March 2012, after 0.87 in February.

By design, the computation of the turning point aims to extract the surprises — positive or negative — from new information in the surveys. Over the first quarter of 2012, confidence improved compared with the previous quarter. Despite the fact that in March we observed some signs of worsening in some indicators, the innovations within the framework of the AR modelling method are interpreted as positive. The TPI currently stands very close to +1, pointing to a possible favourable cyclical phase.

Turning point index for the euro area
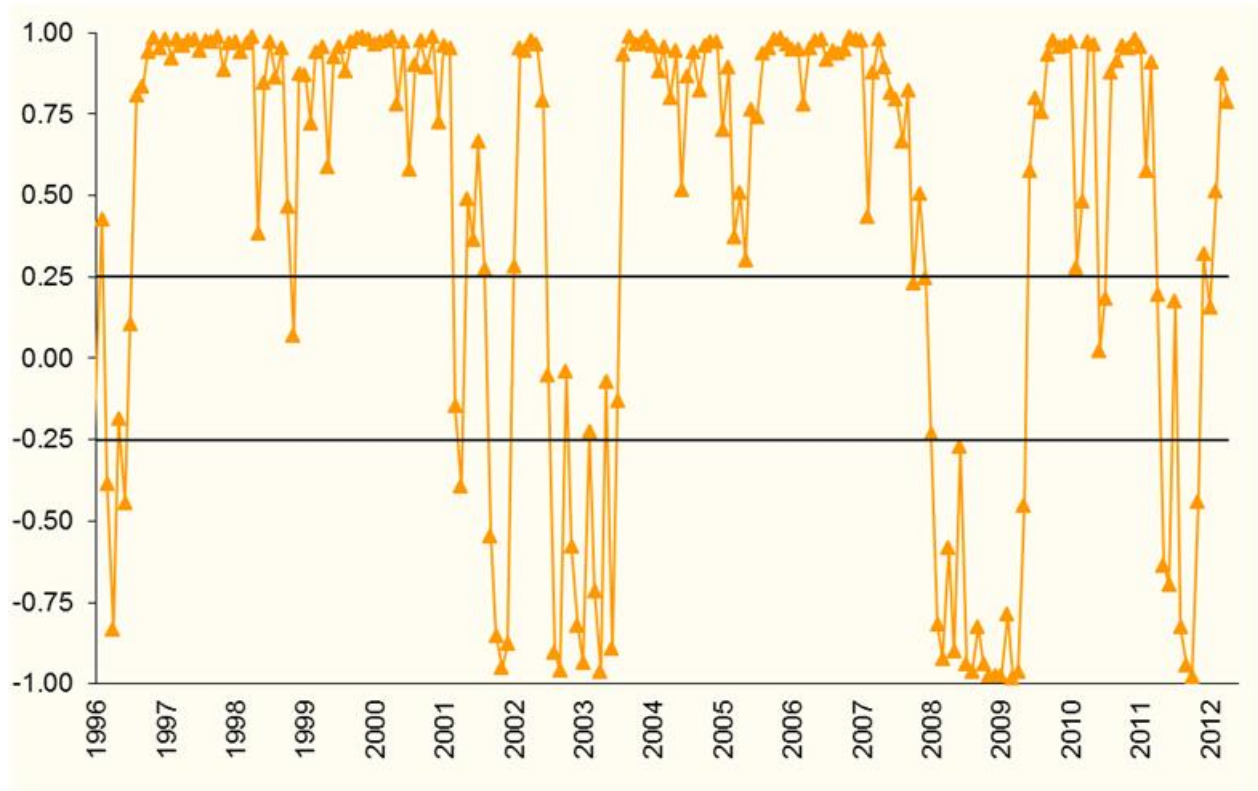
Annex 3: Reference series

The reference series are from Eurostat, via Ecowin:

Confidence indicators	Reference series (volume/year-on-year growth rates)
Total economy (ESI)	GDP, seasonally- and calendar-adjusted
Industry	Industrial production, working day-adjusted
Services	Gross value added for the private services sector, seasonally- and calendar-adjusted
Consumption	Household and NPISH final consumption expenditure, seasonally- and calendar-adjusted
Retail	Household and NPISH final consumption expenditure, seasonally- and calendar-adjusted
Building	Production index for building and civil engineering, trend-cycle component

Economic Sentiment Indicator

The economic sentiment indicator (ESI) is a weighted average of the balances of replies to selected questions addressed to firms and consumers in five sectors covered by the EU Business and Consumer Surveys Programme. The sectors covered are industry (weight 40 %), services (30 %), consumers (20 %), retail (5 %) and construction (5 %).

Balances are constructed as the difference between the percentages of respondents giving positive and negative replies. The Commission calculates EU and euro-area aggregates on the basis of the national results and it seasonally adjusts the balance series. The indicator is scaled to have a long-term mean of 100 and a standard deviation of 10. Thus, values greater than 100 indicate above-average economic sentiment and vice versa. Further details on the construction of the ESI can be found at:

Methodological guides - Surveys – DG ECFIN website

Long time series of the ESI and confidence indicators are available at:

Survey database – DG ECFIN website

Economic Climate Tracer

The economic climate tracer is a two-stage procedure. The first stage consists of building economic climate indicators. These are based on principal component (PC) analyses of balance series (s.a.) from the surveys conducted in industry, services, building, the retail trade and among consumers. In the case of industry, five of the monthly questions in the industry survey are used as input variables (employment and selling-price expectations are excluded). For the other sectors the number of input series is as follows: services: all five monthly questions; consumers: nine questions (price-related questions and the question about the current financial situation are excluded); retail: all five monthly questions; building: all four monthly questions. The economic climate indicator (ECI) is a weighted average of the five PC-based sector climate indicators. The sector weights are equal to those underlying the economic sentiment indicator (ESI), i.e. industry 40 %; services 30 %; consumers 20 %; construction 5 %; and retail trade 5 %. The weights were allocated on the basis of two broad criteria: the representativeness of the sector in question and historical tracking performance in relation to GDP growth.

In the second stage of the procedure, all climate indicators are smoothed using the HP filter in order to eliminate short-term fluctuations of a period of less than 18 months. The smoothed series are then standardised to a

common mean of zero and a standard deviation of one. The resulting series are plotted against their first differences. The four quadrants of the graph, corresponding to the four business cycle phases, are crossed in an anti-clockwise movement. The phases can be described as: above average and increasing (top right, 'expansion'), above average but decreasing (top left, 'downswing'), below average and decreasing (bottom left, 'contraction') and below average but increasing (bottom right, 'upswing'). Cyclical peaks are positioned in the top centre of the graph and troughs in the bottom centre.

Markov Switching Turning Point Index

The purpose of the turning point index model, based on the work of Grégoir and Lenglart (2000),[11] is to identify economic growth trends in the euro area, using all the confidence indicators derived from the surveys of industry, services, building, and consumers as input. This model is symmetric in signalling turning points. TPI values within the $\pm$ 0.25 range imply stabilisation, when the pace of activity is around its potential (the signals received are very varied and indicate no clear-cut upward or downward movement). The economy is performing a soft landing or soft take-off, depending on whether the previous period was marked by acceleration or deceleration. By contrast, the signal is very consistent when TPI values are very close to or reach $\pm$ 1: the cyclical phase is deemed to be clearly favourable or unfavourable; economic activity is in a period of sharp acceleration (or sharp deceleration or even contraction).

---

[11] Grégoir, S. and Lenglart, F. (2000), 'Measuring the probability of a business cycle turning point by using a multivariate qualitative hidden Markov model', *Journal of Forecasting*, 19.